



XENSIV™ – sensing the world

Pocket guide 2018

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Hall switches

TLE/TLI/TLV4961/64/68

Energy-efficient Hall switch family for up to 32 V

| Product | Type | Operating point B_{OP} | Release point B_{RP} | Hysteresis ΔB_{HY} | Automotive | Industrial | Consumer | Package |
|--------------|---------|-----------------------------|---------------------------|-------------------------------|------------|------------|----------|---------------|
| TLE4961-1M/L | Latch | 2.0 | -2.0 | 4.0 | ● | ● | ● | SOT23/SSO-3-2 |
| TLE4961-2M | Latch | 5.0 | -5.0 | 10.0 | ● | ● | ● | SOT23 |
| TLE4961-3M/L | Latch | 7.5 | -7.5 | 15.0 | ● | ● | ● | SOT23/SSO-3-2 |
| TLE4964-1M | Switch | 18.0 | 12.5 | 5.5 | ● | ● | ● | SOT23 |
| TLE4964-2M | Switch | 28.0 | 22.5 | 5.5 | ● | ● | ● | SOT23 |
| TLE4964-3M | Switch | 12.5 | 9.5 | 3.0 | ● | ● | ● | SOT23 |
| TLE4964-5M | Switch | 7.5 | 5.0 | 2.5 | ● | ● | ● | SOT23 |
| TLE4968-1M/L | Bipolar | 1.0 | -1.0 | 2.0 | ● | ● | ● | SOT23/SSO-3-2 |
| TLE4961-5M | Latch | 15.0 | -15.0 | 30.0 | ● | ● | ● | SOT23 |
| TLE4961-4M | Latch | 10.0 | -10.0 | 20.0 | ● | ● | ● | SOT23 |
| TLE4964-4M | Switch | 10.0 | 8.5 | 1.5 | ● | ● | ● | SOT23 |
| TLE4964-6M | Switch | 3.5 | 2.5 | 1.0 | ● | ● | ● | SOT23 |
| TLV4964-1M | Switch | 18.0 | 12.5 | 5.5 | – | – | ● | SOT23 |
| TLV4964-2M | Switch | 28.0 | 22.5 | 5.5 | – | – | ● | SOT23 |
| TLI4961-1M/L | Latch | 2.0 | -2.0 | 4.0 | – | ● | ● | SOT23/SSO-3-2 |
| TLV4961-3M | Latch | 7.5 | -7.0 | 15.0 | – | – | ● | SOT23 |

TLE/TLI4963/65-xM

5 V high-precision automotive/industrial Hall-effect sensor

| Product | Type | Operating point B_{OP} | Release point B_{RP} | Hysteresis ΔB_{HY} | Automotive | Industrial | Package |
|------------|-----------------|-----------------------------|---------------------------|-------------------------------|------------|------------|---------|
| TLE4963-1M | Latch | 2.0 | -2.0 | 4.0 | ● | – | SOT23 |
| TLE4963-2M | Latch | 5.0 | -5.0 | 10.0 | ● | – | SOT23 |
| TLE4965-5M | Unipolar switch | 7.5 | 5.0 | 2.5 | ● | – | SOT23 |
| TLI4963-1M | Latch | 2.0 | -2.0 | 4.0 | – | ● | SOT23 |
| TLI4963-2M | Latch | 5.0 | -5.0 | 10.0 | – | ● | SOT23 |
| TLI4965-5M | Unipolar switch | 7.5 | 5.0 | 2.5 | – | ● | SOT23 |

Hall switches

TLV496x-xTA/B

Precision Hall-effect sensor for consumer applications in leaded package

| Product | Type | Operating point B_{OP} | Release point B_{RP} | Hysteresis ΔB_{HY} | Consumer | Package |
|-------------|-----------------|-----------------------------|---------------------------|-------------------------------|----------|-----------|
| TLV4961-1TA | Latch | 2.0 | -2.0 | 4.0 | ● | TO92S-3-1 |
| TLV4961-1TB | Latch | 2.0 | -2.0 | 4.0 | ● | TO92S-3-2 |
| TLV4961-3TA | Latch | 7.5 | -7.5 | 15.0 | ● | TO92S-3-1 |
| TLV4961-3TB | Latch | 7.5 | -7.5 | 15.0 | ● | TO92S-3-2 |
| TLV4964-4TA | Unipolar switch | 10.0 | 8.5 | 1.5 | ● | TO92S-3-1 |
| TLV4964-4TB | Unipolar switch | 10.0 | 8.5 | 1.5 | ● | TO92S-3-2 |
| TLV4964-5TA | Unipolar switch | 7.5 | 5.0 | 2.5 | ● | TO92S-3-1 |
| TLV4964-5TB | Unipolar switch | 7.5 | 5.0 | 2.5 | ● | TO92S-3-2 |
| TLV4968-1TA | Latch | 1.0 | -1.0 | 2.0 | ● | TO92S-3-1 |
| TLV4968-1TB | Latch | 1.0 | -1.0 | 2.0 | ● | TO92S-3-2 |

TLE4966x

Two-in-one double Hall sensor, vertical dual-Hall sensor

| Product | Type | Operating point B_{OP} | Release point B_{RP} | Hysteresis ΔB_{HY} | Automotive | Package |
|-------------|--|-----------------------------|---------------------------|-------------------------------|------------|---------------|
| TLE4966K/L | Double Hall, speed and direction output | 7.5 | -7.5 | 15 | ● | TSOP6/SSO-4-1 |
| TLE4966-2K | Double Hall, two independent outputs | 7.5 | -7.5 | 15 | ● | TSOP6 |
| TLE4966-3K | Double Hall, speed and direction output | 2.5 | -2.5 | 5 | ● | TSOP6 |
| TLE4966V-1K | Vertical double Hall, speed and direction output | 2.5 | -2.5 | 5 | ● | TSOP6 |

TLE/TLI/TLV49x6 family

High-precision Hall switches

| Product | Type | Operating point B_{OP} | Release point B_{RP} | Hysteresis ΔB_{HY} | Automotive | Industrial | Consumer | Package |
|--------------|--|-----------------------------|---------------------------|-------------------------------|------------|------------|----------|--------------|
| TLE4906K/L | Unipolar switch | 10.0 | 8.5 | 1.5 | ● | ● | – | SC59/SSO-3-2 |
| TLE4906-2K | Unipolar switch | 18.0 | 12.5 | 5.5 | ● | ● | – | SC59 |
| TLE4906-3K | Unipolar switch | 28.0 | 22.5 | 5.5 | ● | ● | – | SC59 |
| TLE4946K | Latch | 14.0 | -14.0 | 28.0 | ● | ● | – | SC59 |
| TLE4946-1L | Latch | 15.0 | -15.0 | 30.0 | ● | ● | – | SSO-3-2 |
| TLE4946-2K/L | Latch | 2.0 | -2.0 | 4.0 | ● | ● | – | SC59/SSO-3-2 |
| TLE4976L | Unipolar switch/ Current interface | 6.0 | 4.0 | 2.0 | ● | ● | – | SSO-3-2 |
| TLE4976-1K | Unipolar switch/ Current interface | 9.25 | 7.25 | 2.0 | ● | ● | – | SC59 |
| TLE4976-2K | Unipolar switch/ Current interface | 4.5 | 2.7 | 1.8 | ● | ● | – | SC59 |
| TLV4946-2K | Unipolar switch | 18.0 | 12.5 | 5.5 | – | – | ● | SC59 |
| TLV4976-2K | Unipolar switch / Current interface | 4.5 | 2.7 | 1.8 | – | – | ● | SC59 |

3D magnetic sensors

TLV493D-A1B6/TLI493D-A2B6

3D magnetic sensors for consumer and industrial applications

| Product | Temperature range | Qualification | Linear magnetic range | Resolution | I _{DD} | Update rate | Package | Ordering code |
|--------------|-------------------|---------------|--------------------------------|---|-----------------|-----------------|---------|---------------|
| TLV493D-A1B6 | -40 ... 125°C | JESD47 | ±130 mT (typ) | 98 µT/LSB | 7 nA – 3.7 mA | 10 Hz – 3.3 kHz | TSOP6 | SP001286056 |
| TLI493D-A2B6 | -40 ... 105°C | JESD47 | ±160 mT (min) ±100 mT (min) | 130 µT/LSB (65 µT/LSB) ¹⁾ | 7 nA – 3.3 mA | 10 Hz – 8.4 kHz | TSOP6 | SP001689844 |

1) Half range mode

TLE493D-A2B6/W2B6

3D magnetic sensors for automotive low-power applications

| Product | Temperature range | Qualification | Linear magnetic range (min) | Resolution | I _{DD} | Update rate | ISO 26262 | Wake-up | Package | Ordering code |
|--|-------------------|---------------|-----------------------------|---|-----------------|--------------------|-----------|---------|---------|--|
| TLE493D-A2B6 | -40 ... 125°C | AEC-Q100 | ±160 mT | 130 µT/LSB (65 µT/LSB) ¹⁾ | 7 nA to 3.3 mA | 10 Hz to 8.4 kHz | – | No | TSOP6 | SP001689848 |
| TLE493D-W2B6 A0 TLE493D-W2B6 A1 TLE493D-W2B6 A2 TLE493D-W2B6 A3 | -40 ... 125°C | AEC-Q100 | ±160 mT ±100 mT | 130 µT/LSB (65 µT/LSB) ¹⁾ | 7 nA to 3.3 mA | 0.05 Hz to 8.4 kHz | Ready | Yes | TSOP6 | SP001655334 SP001655340 SP001655344 SP001655348 |

1) Half range mode

Linear Hall sensors

TLE499x family

Programmable analog/digital linear Hall sensor family

| Product | Program-mable | Number of pins | Sensitivity | Magnetic offset | Supply voltage (extended range) | ISO 26262 | Auto-motive | Interface | Package |
|----------|---------------|--------------------------|--|-------------------------|---------------------------------|-----------|-------------|-----------|--|
| TLE4997 | EEPROM | 3/ Single die SMD 8 | ± 12.5 to ± 300 | $< \pm 400 \mu\text{T}$ | 5 V $\pm 10\%$ (7 V) | Ready | ● | Analog | SSO-3-10 TDSO-8 |
| TLE4998P | EEPROM | 3/4/ Single die SMD 8 | ± 0.2 to $\pm 6\%/m\text{T}$ | $< \pm 400 \mu\text{T}$ | 5 V $\pm 10\%$ (16 V) | Ready | ● | PWM | SSO-3-10 SSO-4-1 SSO-3-9 (2 capacitors) TDSO- 8 |
| TLE4998S | EEPROM | 3/4/ Single die SMD 8 | ± 8.2 to $\pm 245 \text{ LSB}/m\text{T}$ | $< \pm 400 \mu\text{T}$ | 5 V $\pm 10\%$ (16 V) | Ready | ● | SENT | SSO-3-10 SSO-4-1 SSO-3-9 (2 capacitors) TDSO-8 |
| TLE4998C | EEPROM | 3/4/ Single die SMD 8 | ± 8.2 to $\pm 245 \text{ LSB}/m\text{T}$ | $< \pm 400 \mu\text{T}$ | 5 V $\pm 10\%$ (16 V) | Ready | ● | SPC | SSO-3-10 SSO-4-1 SSO-3-9 (2 capacitors) TDSO-8 |

Two sensors in one SMD package

Linear Halls

| Product | Interface | Dual-/single-sensor available | ISO 26262 | Package |
|------------|-----------|-------------------------------|-----------|---------|
| TLE4997A8D | Analog | yes/yes | Ready | TDSO-8 |
| TLE4998P8D | PWM | yes/yes | Ready | TDSO-8 |
| TLE4998S8D | SENT | yes/yes | Ready | TDSO-8 |
| TLE4998C8D | SPC | yes/yes | Ready | TDSO-8 |

Angle sensors

iGMR, iAMR and iTMR based angle sensors

Diverse redundant sensor with analog and digital interface

| Product | Technology | Die configuration | ISO 26262 | Sin/cos output | Angle output | Second interface | Accuracy | Package |
|---------------|------------|-------------------|-----------|----------------|--------------|------------------|--------------------|-------------------|
| TLE5009 | GMR | Single die | Ready | Analog sin/cos | – | – | 0.9° | DSO-8 |
| TLE5009A16(D) | GMR | Dual die | Ready | Analog sin/cos | – | – | 1.0° | TDSO-16 |
| TLE5011 | GMR | Single die | Ready | SSC (SPI) | – | – | 1.6° | DSO-8 |
| TLI5012B | GMR | Single die | Ready | SSC (SPI) | SSC (SPI) | PWM/IIF/SPC/HSM | 1.9° | DSO-8 |
| TLE5012B(D) | GMR | Single & dual die | Ready | SSC (SPI) | SSC (SPI) | PWM/IIF/SPC/HSM | 1.0° | DSO-8/ TDSO-16 |
| TLE5014C16(D) | GMR | Single & dual die | Compliant | – | SPC | – | 1.0° | TDSO-16 |
| TLE5014P16(D) | GMR | Single & dual die | Compliant | – | PWM | – | 1.0° | TDSO-16 |
| TLE5014S16(D) | GMR | Single & dual die | Compliant | – | SENT | – | 1.0° | TDSO-16 |
| TLE5109A16(D) | AMR | Single & dual die | Ready | Analog sin/cos | – | – | 0.5° | TDSO-16 |
| TLE5309D | AMR + GMR | Dual die | Ready | Analog sin/cos | SSC (SPI) | – | AMR 0.5°, GMR 1.0° | TDSO-16 |
| TLE5501 | TMR | Single die | Compliant | Analog sin/cos | – | – | 1.0° | DSO-8 |

Magnetic speed sensors

The speed sensing family

| Product | Sensor technology | AEC-Q100 qualified | RoHS | HAL free | Automotive | Industrial | Product status |
|--------------|-------------------|--------------------|------|----------|------------|------------|----------------|
| TLE4921 | Differential Hall | ● | ● | – | ● | ● | In production |
| TLE4922 | Mono-Hall | ● | ● | ● | ● | ● | In production |
| TLE4924 | Differential Hall | ● | ● | – | ● | ● | In production |
| TLE4926 | Differential Hall | ● | ● | – | ● | – | In production |
| TLE4927 | Differential Hall | ● | ● | – | ● | ● | In production |
| TLE4928 | Differential Hall | ● | ● | – | ● | – | In production |
| TLE4941 | Differential Hall | ● | ● | – | ● | – | In production |
| TLE4941plusC | Differential Hall | ● | ● | ● | ● | – | In production |
| TLE4942 | Differential Hall | ● | ● | – | ● | – | In production |
| TLE4943 | Differential Hall | ● | ● | ● | ● | – | In production |
| TLE4953 | Differential Hall | ● | ● | – | ● | – | In production |
| TLE4955 | Differential Hall | ● | ● | ● | ● | – | In production |
| TLE4957 | Differential Hall | ● | ● | – | ● | – | In production |
| TLE4959 | Differential Hall | ● | ● | ● | ● | – | In production |
| TLE4983 | Mono-Hall | ● | ● | – | ● | – | In production |
| TLE4984 | Mono-Hall | ● | ● | – | ● | – | In production |
| TLE4986 | Mono-Hall | ● | ● | – | ● | – | In production |
| TLE5025 | iGMR differential | ● | ● | ● | ● | – | In production |
| TLE5027 | iGMR differential | ● | ● | – | ● | – | In production |
| TLE5028 | iGMR differential | ● | ● | ● | ● | – | In production |
| TLE5041plusC | iGMR differential | ● | ● | ● | ● | – | In production |
| TLE5045 | iGMR differential | ● | ● | – | ● | – | In production |
| TLE5046 | iGMR differential | ● | ● | – | ● | – | In production |

Magnetic speed sensors

Overview of magnetic speed sensors

| | Icon/ Description | TLE4921 | TLE4922 | TLE4924 | TLE4926 | TLE4927 | TLE4928 | TLE4929 | TLE4941 | TLE4941plusC | TLE4942 | TLE4943 | TLE4953 |
|--|------------------------|------------|-----------|------------|------------|------------|------------|------------|------------|--------------|------------|------------|------------|
| Automotive | Wheel speed | - | ● | - | - | - | - | - | ● | ● | ● | ● | - |
| | Camshaft | - | ● | ● | - | ● | - | - | - | - | - | - | - |
| | Crankshaft | ● | ● | ● | ● | ● | ● | ● | - | - | - | - | - |
| | Transmission | ● | ● | - | - | - | - | - | ● | ● | ● | - | ● |
| Industrial | | ● | ● | ● | - | ● | ● | ● | - | ● | - | - | - |
| Sensor technology | | Diff. Hall | Mono-Hall | Diff. Hall | Diff. Hall | Diff. Hall | Diff. Hall | Diff. Hall | Diff. Hall | Diff. Hall | Diff. Hall | Diff. Hall | Diff. Hall |
| Improved air gap/jitter performance | | - | - | - | - | - | - | ● | - | - | - | - | - |
| Direction information available | | - | - | - | - | - | - | ● | - | - | ● | ● | ● |
| True Power On (TPO) | | - | - | - | - | - | - | - | - | - | - | - | - |
| Twist-Independent Mounting (TIM) | | - | ● | - | - | - | - | - | - | - | - | - | - |
| Vibration suppression algorithm included | | - | - | - | - | - | - | ● | - | - | - | - | ● |
| Type of hysteresis ¹⁾ | | V | H | V | H | H | H | H | H | H | H | H | V |
| | | F | A | A/F | F | A | F | A | F | F | F | A | A |
| Interface ²⁾ | # of pins | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 | 2 | 2 |
| | Interface | V | V | V | V | V | V | V | C | C | C | C | C |
| | Protocol | S | P | S | S | S | S | | S | S | P | AK | P |
| Electrostatic Discharge (ESD) | Human Body Model (HBM) | 2 kV | 4 kV | 6 kV | 6 kV | 6 kV | 6 kV | 6 kV | 12 kV | 12 kV | 12 kV | 12 kV | 12 kV |
| Package without integrated capacitor | | ● | ● | - | - | - | ● | - | ● | - | - | - | ● |
| Package with integrated capacitor | | - | - | ● | ● | ● | ● | ● | - | ● | ● | ● | ● |

1) H = Hidden; V = Visible; F = Fixed; A = Adaptive; P = Programmable
2) AK = AK protocol; C = Current; V = Voltage interface; S = Single pulse; P = PWM protocol

| TLE4955 | TLE4957 | TLE4959 | TLE4983 | TLE4984 | TLE4986 | TLE5025 | TLE5027 | TLE5028 | TLE5041plusC | TLE5045 | TLE5046 |
|------------|------------|------------|-----------|-----------|-----------|---------|---------|---------|--------------|---------|---------|
| - | - | - | - | - | - | - | - | - | ● | ● | ● |
| - | - | - | ● | ● | ● | ● | - | - | - | - | - |
| - | ● | - | - | - | - | ● | ● | ● | - | - | - |
| ● | ● | ● | - | - | - | - | - | - | - | - | - |
| - | - | - | - | - | - | - | - | - | - | - | - |
| Diff. Hall | Diff. Hall | Diff. Hall | Mono-Hall | Mono-Hall | Mono-Hall | iGMR | iGMR | iGMR | iGMR | iGMR | iGMR |
| - | - | ● | - | - | - | ● | ● | ● | ● | ● | ● |
| ● | - | ● | - | - | - | - | ● | ● | - | - | ● |
| - | - | - | ● | ● | ● | - | - | - | - | - | - |
| - | - | - | ● | ● | ● | - | - | - | - | - | - |
| ● | ● | ● | - | - | - | - | - | - | - | - | - |
| V | V/H | V | H | H | V/H | H | H | H | H | H | H |
| A | A | A | F | F | P/A | A | A | A | F | A | A |
| 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 2 | 2 |
| C | V | V | V | V | V | V | V | V | C | C | C |
| P | S | P | S | S | S | S | P | P | S | S | P/AK |
| 12 kV | 6 kV | 6 kV | 4 kV | 4 kV | 6 kV | 8 kV | 8 kV | 8 kV | 12 kV | 12 kV | 12 kV |
| ● | - | - | - | - | - | - | - | - | - | ● | ● |
| ● | ● | ● | ● | ● | ● | ● | ● | ● | ● | - | - |

Magnetic speed sensors

TLE4924/26/27/28C

High-performance speed sensor family

| Product | Hysteresis | Comment | Standard |
|---------------|------------------|--------------------------|----------|
| TLE4924C-1 | Visible fixed | – | SSO-3-9 |
| TLE4924C(B)-2 | Visible adaptive | – | SSO-3-9 |
| TLE4926C | Hidden fixed | – | SSO-3-9 |
| TLE4926C-HT | Hidden fixed | High temperature profile | SSO-3-9 |
| TLE4927C(B) | Hidden adaptive | – | SSO-3-9 |
| TLE4928C | Hidden fixed | 200 ms watchdog reset | SSO-3-9 |

TLE4941plusC/TLE4942-1C/TLE4943C/TLE5045iC/TLE5046iC

Safety first – wheel speed sensors

| Product | Sensor technology | Pole wheel | Steel wheel | Direction detection | Protocol | iTPMS |
|---------------|-------------------|------------|-------------|---------------------|----------|-------|
| TLE4941plusC | Hall differential | ● | ● | – | Standard | – |
| TLE4942-1C | Hall differential | ● | ● | ● | PWM | – |
| TLE4943C | Hall differential | ● | ● | ● | AK | – |
| TLE5045iC | iGMR differential | ● | – | – | Standard | ● |
| TLE5046iC-PWM | iGMR differential | ● | – | ● | PWM | ● |
| TLE5046iC-AK | iGMR differential | ● | – | ● | AK | ● |

TLI/TLE4970

High-precision current sensors

| Product | Accuracy ¹⁾ | Current range [A] | Bandwidth [kHz] | Resolution [mA/LSB] | Automotive | Industrial | Package |
|----------------|------------------------|-------------------|-----------------|---------------------|------------|------------|---------|
| TLI4970-D050T4 | ±1.6 | ±50 | 18 | 12.5 | – | ● | TISON-8 |
| TLI4970-D050T5 | ±3.5 | ±50 | 18 | 12.5 | – | ● | TISON-8 |
| TLI4970-D025T4 | ±1.6 | ±25 | 18 | 6.25 | – | ● | TISON-8 |
| TLI4970-D025T5 | ±3.5 | ±25 | 18 | 6.25 | – | ● | TISON-8 |
| TLE4970-D050T4 | ±1.6 | ±50 | 18 | 12.5 | On request | – | TISON-8 |
| TLE4970-D025T4 | ±1.6 | ±25 | 18 | 6.25 | On request | – | TISON-8 |

1) Total error over lifetime and temperature

Integrated pressure sensor ICs

Integrated pressure sensor ICs for manifold and barometric air pressure

| Product | Pressure range [kPa] | Max. accuracy [kPa] | Max. operating temperature [°C] | Automotive | Industrial |
|------------|----------------------|---------------------|---------------------------------|------------|------------|
| KP21x | 10 ... 115 | 1.0 | 140 | ● | ● |
| KP22x | 10 ... 400 | 2.5 | 140 | ● | ● |
| KP23x | 40 ... 115 | 1.0 | 125 | ● | ● |
| KP236N6165 | 60 ... 165 | 1.0 | 125 | ● | ● |
| KP253 | 60 ... 165 | 1.0 | 125 | ● | ● |
| KP254 | 40 ... 115 | 1.5 | 125 | ● | ● |
| KP255 | 10 ... 125 | 1.4 | 140 | ● | ● |
| KP256 | 60 ... 165 | 1.0 | 125 | ● | ● |
| KP275 | 10 ... 400 | 3.0 | 170 | ● | ● |

KP200/KP201/KP204

PSI5 PRO-SIL™ ready pressure sensor ICs for side crash detection and pedestrian protection

| Product | PRO-SIL™ support in line with IEC 61508 and ISO 26262 | ISO 26262 |
|-------------------|--|-----------|
| KP200/KP201/KP204 | <div> <div> > KP201 qualified for higher operating temperatures up to 125°C </div> <div> > KP204 with 4-hole lid supporting insect intrusion </div> </div> | Ready |

More information on PRO-SIL™ can be found at www.infineon.com/prosil

SP270-25-256-0

Pressure sensor with integrated low power microcontroller

| Parameter | Values | | Unit | Note/test condition |
|---------------------------------------|--------|------|------|---------------------------------------|
| | Min. | Max. | | |
| Input pressure range | 100 | 500 | kPa | T = -40 ... 125°C |
| Measurement error 100 ... 500 kPa | -21 | +21 | kPa | T = 25 ... 80°C |
| | -46 | +46 | kPa | T = -40 ... 125°C |
| Input pressure range | 500 | 1300 | kPa | T = -40 ... 125°C |
| Measurement error 500 ... 1300 kPa | -31 | +31 | kPa | T = 25 ... 80°C |
| | -60 | +60 | kPa | T = -40 ... 125°C |
| Temperature measurement error | -3 | +3 | °C | T = -20 ... 70°C |
| | -5 | +5 | °C | T = -40 ... -20°C T = 70 ... 125°C |

Digital pressure sensor ICs

DPS310/DPS368/ DPS422

Digital barometric air pressure sensor

| Key product features | DPS310/DPS368 ¹⁾ | | DPS422 ²⁾ |
|---|---|--|---|
| Operating pressure range | 300 ... 1200 hPa | | |
| Operating temperature range | -40 ... 85°C | | |
| Pressure level precision | ± 0.005 hPa (or ±0.05 m) | | |
| Relative accuracy/Absolute accuracy | ± 0.06 hPa (or ±0.5 m)/± 1 hPa (or ±8 m) | | |
| Temperature accuracy | 0.5°C | | < 0.4°C |
| Pressure temperature sensitivity | 0.5 Pa/K | | |
| Measurement time | 3.6 ms (low precision); 27.6 ms (standard mode) | | |
| Average current consumption @ 1 Hz sampling rate | 1.7 µA for pressure measurement/1.5 µA for temperature measurement (0.5 µA standby) | | 1.7 µA for pressure measurement/2.0 µA for temperature measurement (1.0 µA standby) |
| Supply voltage | V _{DDIO} : 1.2–3.6 V; V _{VDD} : 1.7–3.6 V | | |
| Operating modes | Command (manual), background (automatic), standby | | |
| Interface | I ² C and SPI, both with optional interrupt | | |
| Package | 8 pins LGA: 2.0 x 2.5 x 1.0 mm (DPS310) 8 pins LGA: 2.0 x 2.5 x 1.1 mm (DPS368) | | 8 pins LGA: 2.0 x 2.5 x 0.73 mm |

1) Available Q1 2019 2) Available Q3 2018

Tire pressure sensors

SP40

Tire pressure sensor for Tire Pressure Monitoring Systems (TPMS)

| Product | Pressure range [kPa] | On-chip flash memory [kB] | Key features |
|-------------|----------------------|---------------------------|--|
| SP400-11-01 | 100–900 | 12 | <div><div>› Highest integration</div><div>› Very low energy consumption</div><div>› Robust g- and p-sensor</div><div>› High LF sensitivity</div></div> |
| SP400-11-11 | 100–900 | 12 + 2 | |

SP37

TPMS sensor for trucks and commercial, construction and agricultural vehicles (CAV)

| Product | Pressure range [kPa] | On-chip flash memory [kB] |
|----------------|----------------------|---------------------------|
| SP370-23-156-0 | 100–1.300 | 6 |

RASIC™ – automotive radar sensor ICs

77/79 GHz automotive RADARs

| Product | Configuration | Key benefits | Features |
|-----------|---------------|---|--|
| RXS8160PL | 3Tx4Rx | Cascadable from single- to multi-chip | <ul style="list-style-type: none">› Flexible FMCW waveform generation› 2 GHz modulation bandwidth› Four receive channels featuring integrated filters + AD converters› 4 channel LVDS data interface› Robust eWLB package (7 x 8.5 mm) |
| RXS8150PL | 2Tx4Rx | Cost efficient solution for corner radars | |

24 GHz radar sensor ICs

BGT24M/L family of MMIC chips

| Product | Configuration | Key benefits | Features |
|------------|---------------|---|---|
| BGT24MTR11 | 1Tx + 1Rx | 32 pin leadless RoHS compliant VQFN package | <ul style="list-style-type: none">› Measures not just motion, but also speed, direction, and distance› Small form factor› Resistance to moisture, dirt and temperature› Increased area coverage› Discrete design› Energy savings› Privacy protection› Adaptable to different application requirements› Highly integrated chips eliminating costly external components |
| BGT24MR2 | 2Rx | Twin receiver | |
| BGT24MTR12 | 1Tx + 2Rx | On chip power and temperature sensors | |
| BGT24LTR11 | 1Tx + 1Rx | Low power consumption | |

MEMS microphones

High Performance MEMS microphones

| Product | Current consumption | Sensitivity | Signal to Noise | AOP | Features |
|----------|---------------------|-------------|-----------------|------------|--|
| IM69D120 | 980 µA | -26 dBFS | 69 dB | 120 dB SPL | <ul style="list-style-type: none">› 69 dB(A) signal-to-noise ratio (for < 20 bit encoding systems IM69D120 required)› Below 1 percent distortions at 128 dB SPL (AOP – 130 dB SPL)› Digital (PDM) interface with 6 µs group delay at 1 kHz› Tight sensitivity (-36 ±1 dB) and phase (±2 deg) tolerances› 28 Hz low frequency roll-off |
| IM69D130 | 980 µA | -36 dBFS | 69 dB | 130 dB SPL | |

Shields 2GO

| Product name | Sales name | SP number |
|------------------------------------|------------------------|-------------|
| OPTIGA™ Trust E Security Shield2Go | S2Go_Security_OPTIGA_E | SP001820138 |
| TLV493D 3DSense Shield2Go | S2GO_3D-SENSE_TLV493D | SP001823678 |
| DPS310 Pressure | S2GO_PRESSURE_DPS310 | SP001777630 |
| TLI4970 Current Sense Shield2Go | S2GO_CUR-SENSE_TLI4970 | SP001823682 |
| XMC 2Go Kit | KIT_XMC_2GO_XMC1100_V1 | SP001199544 |
| MyIoT Adapter | MYIOTADAPTERTOBO1 | SP002434972 |

2GO evaluation kits

Sensors 2GO

| Product name | Target application | Product status |
|--------------------------|----------------------------------|----------------|
| JOYSTICK FOR 3D 2 GO KIT | Automotive, industrial, consumer | SP001491834 |
| LINEAR-SLIDER 2GO | Automotive, industrial, consumer | SP002043034 |
| ROTATE KNOB 3D 2 GO KIT | Automotive, industrial, consumer | SP001504602 |
| TLE4922 MS2GO | Automotive | SP001624692 |
| TLV493D-A2B6 MS2GO | Automotive | SP001707582 |
| TLV493D-W2B6 MS2GO | Automotive | SP001707578 |
| TLV493D-A1B6 MS2GO | Industrial, consumer | SP001707574 |
| TLI4970050 MS2GO | Industrial, consumer | SP003119148 |

MEMS 2GO

| Product name | Target application | Product status |
|-----------------------|--------------------|----------------|
| EVAL_IM69D130_FLEXKIT | Consumer | SP002153022 |

Functional safety

What does ISO 26262 compliant mean?

Infineon PRO-SIL™ ISO 26262-compliant safety sensors fulfil the properties required by the ISO 26262 (Automotive Safety) Standard. PRO-SIL™ ISO 26262-compliant product development follows a product specific safety plan defined by Infineon. The product development follows the Infineon V-model based development lifecycle which encompasses all ISO 26262 required activities and work products related to the product scope. Product relevant safety requirements and required metrics are captured and verified through the development of the product, this includes the product safety concept and ultimately a product safety case which provides the argumentation and evidence showing achievement of the defined safety requirements and process compliance, including all essential supporting processes.

An independent functional safety management organization supports the ISO 26262 conform safety lifecycle.

For ISO 26262-compliant products a Safety Manual and a Safety Analysis Summary Report can be delivered to our customers* in addition to Infineon standard documentation:

Moreover Infineon offers expert support for system integrators to achieve the required ASIL on system level. Infineon's activities result in a simplified integration in safety-related applications.

What does ISO 26262 ready mean?

Infineon PRO-SIL™ ISO 26262-ready sensors are developed according to Infineon's sophisticated Automotive Development and Quality Standards. For ISO 26262-ready products additional functional safety analysis will be provided. ISO 26262-ready enables our customers to use Infineon's (QM) Products in safety related applications.

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- › China, mainland 4001 200 951 (Mandarin/English)
- › India 000 800 4402 951 (English)
- › USA 1-866 951 9519 (English/German)
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